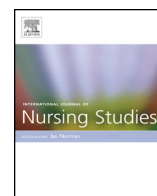




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Self-care confidence may be more important than cognition to influence self-care behaviors in adults with heart failure: Testing a mediation model



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ABSTRACT

Background: Cognitive impairment can reduce the self-care abilities of heart failure patients. Theory and preliminary evidence suggest that self-care confidence may mediate the relationship between cognition and self-care, but further study is needed to validate this finding.

Objectives: The aim of this study was to test the mediating role of self-care confidence between specific cognitive domains and heart failure self-care.

Design: Secondary analysis of data from a descriptive study.

Settings: Three out-patient sites in Pennsylvania and Delaware, USA.

Participants: A sample of 280 adults with chronic heart failure, 62 years old on average and mostly male (64.3%).

Methods: Data on heart failure self-care and self-care confidence were collected with the Self-Care of Heart Failure Index 6.2. Data on cognition were collected by trained research assistants using a neuropsychological test battery measuring simple and complex attention, processing speed, working memory, and short-term memory. Sociodemographic data were collected by self-report. Clinical information was abstracted from the medical record. Mediation analysis was performed with structural equation modeling and indirect effects were evaluated with bootstrapping.

Results: Most participants had at least 1 impaired cognitive domain. In mediation models, self-care confidence consistently influenced self-care and totally mediated the relationship between simple attention and self-care and between working memory and self-care (comparative fit index range: .929–.968; root mean squared error of approximation range: .032–.052). Except for short-term memory, which had a direct effect on self-care maintenance, the other cognitive domains were unrelated to self-care.

Conclusions: Self-care confidence appears to be an important factor influencing heart failure self-care even in patients with impaired cognition. As few studies have successfully improved cognition, interventions addressing confidence should be considered as a way to improve self-care in this population.

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What is already known about the topic?

- Cognitive impairment affects 25–50% of adults with heart failure.
- Cognitive impairment may reduce HF patient self-care but literature is inconsistent.
- Only one study reports that self-care confidence mediates between global cognition and heart failure self-care.

What this paper adds

- Self-care confidence totally mediates the relationship between simple attention and heart failure self-care.
- Self-care confidence totally mediates the relationship between working memory and heart failure self-care.
- Interventions addressing self-care confidence might be more effective than interventions based on cognitive training to improve self-care of heart failure patients.

1. Introduction

Heart failure is a pandemic syndrome affecting the 0.5–2% of the general population in western countries (Mozaffarian et al., 2015). Almost 6 million people in the US and 15 million people in Europe are affected by heart failure (McMurray et al., 2012; Mozaffarian et al., 2015). Because heart failure prevalence increases with age, it is predicted that by 2030, 25% of the population will have heart failure (Heidenreich et al., 2013).

Heart failure patients experience poor outcomes such as decreased quality of life, repeated hospitalization, and high mortality rates (Falk et al., 2013; Lam and Smeltzer, 2012; Murthy and Lipman, 2011; Song et al., 2010). However, if patients perform adequate self-care they can improve these outcomes (Ditewig et al., 2010; Jones et al., 2012; Tung et al., 2013).

As defined by the situation-specific theory of heart failure self-care (Riegel and Dickson, 2008; Riegel et al., 2015), self-care is a process that involves self-care maintenance, symptom perception, and self-care management. The goal of self-care maintenance is to maintain physiologic stability through treatment adherence (e.g., medication adherence); symptom perception involves monitoring for changes (e.g., checking ankles for swelling); and self-care management, which includes the response to signs and symptoms of a heart failure exacerbation (e.g., recognize symptoms quickly). In the theory, self-care confidence, also referred to as self-efficacy in task-specific self-care behaviors, is said to mediate and/or moderate the self-care process (Riegel and Dickson, 2008; Riegel et al., 2015). That is, factors influencing self-care may do so through self-care confidence (mediation) or different levels of self-care confidence may change the manner in which these factors influence self-care (moderation) (Baron and Kenny, 1986).

An important factor thought to potentially influence self-care is cognition (Dickson et al., 2007). Cognitive impairment is found in 25–50% of adults with heart failure

(Dodson et al., 2013; Gure et al., 2012; Pressler, 2008) but literature is inconsistent regarding the influence of cognitive impairment on heart failure self-care. In fact, some studies have shown that cognitive impairment affects self-care (Alosco et al., 2012; Harkness et al., 2013) while others have not (Cameron et al., 2009). This inconsistency in the literature might be due to the effect of mediators or moderators (such as self-care confidence) that influence the relationship between cognition and self-care. In fact, in a recent study, self-care confidence totally mediated the relationship between cognition and self-care (Vellone et al., 2015), even though cognition was measured only with the Mini Mental State Examination that is useful for screening purposes but it is not advocated to evaluate specific cognitive domains in patients (Cameron et al., 2015). Knowing which specific domain of cognition influences self-care confidence and if self-care confidence mediates the relationship between these specific cognitive domains and self-care behaviors (self-care maintenance and management) would improve our understanding of potential ways to improve self-care. In fact, while it is well known that heart failure self-care can be improved via self-care confidence (Cox et al., 2013; Flynn et al., 2005; Pozehl et al., 2010; Smeulders et al., 2010), we do not have yet strong evidence showing that heart failure self-care can be improved via cognitive improvement (Pressler et al., 2011).

Therefore, the aim of this study was to test the mediating role of self-care confidence in the relationship between specific cognitive domains (simple and complex attention, processing speed, working memory, and short-term memory) and self-care maintenance and management as illustrated in Fig. 1. As predicted by the situation-specific theory of heart failure self-care (Riegel and Dickson, 2008; Riegel et al., 2015) and prior work (Vellone et al., 2015), our hypothesis was that these cognitive domains would not have a direct effect on self-care behaviors but would affect self-care behaviors (self-care maintenance and management) *only* indirectly through self-care confidence.

2. Methods

2.1. Design, sample and setting

This was a secondary analysis of data from a descriptive cohort comparison study (Riegel et al., 2011). Methodology of the parent study has been published elsewhere (Riegel et al., 2011). Briefly, the aim of the parent study was to

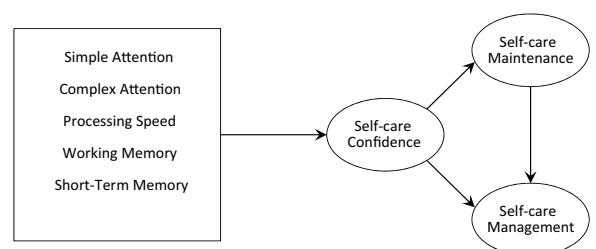


Fig. 1. The conceptual model guiding the study.

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